

CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

C. A. DONNEL, Acting District Editor.

GENERAL SUMMARY.

The feature of the month was the warm term covering the first decade. In several respects this was a remarkable period of high temperature. Over much of the southern half of the district not only was it the warmest decade of the entire summer of 1912, but it was the warmest decade in September on record. At Davenport, Iowa, the 12-day period ending on the 10th, when compared with normal conditions, was the warmest period of like length in the history of that station, the departure of the mean temperature from the normal averaging 14° a day. Although the average precipitation for the whole district was practically the normal amount, there were wide variations in the distribution even in the individual States. Toward the close of the month heavy to killing frosts occurred over the entire district, except in southern Illinois. Great damage to late crops resulted therefrom in the North Dakota area. In that State the weather of the month was very unfavorable, being cool, cloudy, and wet, and all kinds of outdoor occupations were greatly interfered with.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

Parts of States within District 5.	Temperature.				Precipitation.					
	Mean.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Average snow fall.	Average number of days with precipitation.
North Dakota.....	51.7	-3.8	101	18	3.15	+1.22	7.67	1.11	0.6	9
Minnesota.....	57.3	-1.0	98	15	3.08	-0.41	6.42	0.95	1.0	10
South Dakota.....	55.5	-5.1	96	24	1.60	+0.01	1.87	1.32	2.3	8
Wisconsin.....	60.0	-0.2	96	20	3.76	+0.39	6.23	1.31	T.	10
Iowa.....	62.5	-1.0	104	27	3.84	+0.48	9.32	0.60	T.	11
Missouri.....	67.6	-0.6	102	28	2.82	-1.01	4.05	1.79	0	5
Indiana.....	66.3	+1.7	97	31	2.94	-0.50	4.32	1.58	0	9
Illinois.....	66.3	+0.9	103	27	2.74	-0.91	5.78	0.80	0	8

TEMPERATURE.

Two sharply contrasted periods marked the temperature conditions of the month. That extending over the first decade was attended at some stations in southern sections by the highest temperatures of the entire summer. The whole period was abnormally warm, the average daily excess of mean temperature exceeding 10° . In Illinois several heat prostrations occurred. After the 10th the weather became cooler, and the temperature averaged below the normal almost every day for the remainder of the month. As a result of this more extended period of cool weather the month as a whole goes

on record as slightly cooler than the average September. However, in eastern Iowa, part of the Wisconsin area and in Illinois and Indiana the mean temperature was above the normal, but in no case was the average daily excess above 3° . The mean temperature for the district was 60.7° , or 0.6° less than the normal. In the western North Dakota area the month was the coolest September on record, the departure of the mean temperature from the normal being almost 8° . The lowest monthly mean temperature, 47.1° occurred at Granville, N. Dak., and the highest monthly mean was 73.0° , at Cobden, Ill. In all cases the highest monthly temperatures occurred within the first decade. The 2d was the only day of this period on which a monthly maximum temperature did not occur at some station. The highest temperature reported was 104° , at Ottumwa, Iowa, on the 8th. Sixteen other stations reported a temperature of 100° or higher. The last six days of the month were marked by cool, frosty weather, and the lowest temperatures of the month in all cases were reported at that time. Freezing temperature occurred at practically all stations except those in southern Illinois. The lowest temperature reported was 15° , at Roseau, Minn., on the 29th.

PRECIPITATION.

The geographical distribution of the precipitation was decidedly irregular, and in each of the larger State areas the monthly amounts varied by as much as 5 inches. Generally speaking, however, the month was wettest in the southwestern Iowa area, and driest in southern Minnesota. The average precipitation for the entire district was 3.31 inches, or only 0.04 inch less than the normal. The greatest monthly amount, 9.32 inches, occurred at Guthrie Center, Iowa, and the least monthly amount was 0.60 inch, at Ottumwa, in the same State. In point of time the distribution was fairly good, except over the southeastern quarter of the district, where the first 13 days were exceedingly dry. In northwestern Illinois roads became very dusty, pastures were brown, and small streams dry. The drought was broken on the night of the 14th-15th. The average number of rainy days was 9. Eighteen stations, most of which are in Wisconsin, reported excessively heavy precipitation at the rate of 2.5 inches or more within a 24-hour period. There was about the average thunder-storm frequency, but the month was comparatively free from severe storms of that class.

Snow.—Snow fell in measurable quantities over the northern part of the district toward the end of the month, and a trace was reported as far south as central Iowa. At one station in the North Dakota area and four in Minnesota the monthly snow fall was 6 inches.

RIVERS.

The important event in the month was the flood in the Wisconsin River, which is described elsewhere in a special article. This was the third flood of the summer in that river. The reports received indicate good stages in the Mississippi throughout the month, and at the close the river at Davenport was slightly lower than at the end of August.

MISCELLANEOUS.

Southwesterly winds prevailed, but in the north the direction was mostly northwesterly. The highest velocity reported was 37 miles an hour, from the south, at St. Paul, Minn., on the 9th. This is somewhat lower than the highest velocity usually reported in September. For the district as a whole about the average amount of sunshine was experienced. The normal percentage is about 60. The average number of clear days was 13; partly cloudy, 8; cloudy, 9.

WISCONSIN RIVER FLOOD, SEPTEMBER, 1912.

By JAMES H. SPENCER, Local Forecaster.

From about 2 to 3.50 inches of rain in the Merrill-Wausau section of the Wisconsin Valley within 12 hours on Saturday night, August 31, caused the third flood of the summer of 1912 in the Wisconsin River. The flood was preceded by weeks of heavy rains, and the soil was thoroughly soaked and small streams were considerably swollen before the storm occurred that caused the flood. Losses from the flood in the Dubuque River district as a whole will aggregate \$50,000 to \$75,000, possibly more.

The river at Wausau rose from a stage of about 6 feet before the storm to 10.4 feet on the morning of September 1st, and to a crest stage of 12.6 feet at about 10 p. m. of the same date. The rise at and near Merrill was about the same as at Wausau. The river rose nearly 7 feet in three days at Grand Rapids to a crest stage of 11.3 feet on the 4th; and it rose 6 feet at Portage in five days to a crest stage of 11.9 feet on the 7th.

In the lower Wisconsin Valley the flood was the worst of the year, though it did not equal that of October, 1911. The storm that caused the flood also caused washouts that derailed two trains in northern Wisconsin, resulting in the death of a number of persons.

DAMAGE AT MERRILL AND WAUSAU.

Losses from the flood in the Wausau-Merrill section were very light compared to the July flood of this year. Postmaster F. W. Kubasta, of Merrill, reports the losses in that vicinity as follows:

Most of the damage was done to the filling of the dam of the Grandfather Falls Co. They had just about finished the repairs made necessary by the July flood when it was again washed out by the September flood. It is estimated that the damage will be about \$3,000. The same is true of the Merrill Railway & Light Co. They had just about completed a large retaining wall 4 feet thick of solid stone and concrete construction when the flood washed out a section about 40 feet in length. The damage to this property, and the filling thereto, will approximate \$4,000. The damage to railroad tracks, by reason of being washed out, will possibly be \$5,000.

Postmaster A. W. Trevitt, of Wausau, says:

There was but little loss here by the September flood. The only damage was about \$1,000 each to the Chicago & Northwestern Railroad and the Chicago, Milwaukee & St. Paul Railroad; also a loss of about \$500 to the Wausau Street Railway Co.

There was no material loss between Rothschild and Kilbourn, except some to crops on lowlands. From Kilbourn to the mouth of the river the highest water was only about a foot lower than in October, 1911, and large quantities of uncut hay and many fields of corn, potatoes, etc., were swept away. For instance, in the vicinity of Sauk City lowlands 3 miles from the river bed were flooded.

At Portage the levees, which protect property valued at hundreds of thousands of dollars, were strengthened upon receipt of the warnings of the Weather Bureau. Correct stages were predicted three to five days in advance, and Mr. H. S. Rockwood, editor of the Portage Daily Democrat, says: "The telegrams of river conditions were valuable and timely aids to the dwellers of this land of flood." The only serious loss at Portage was to crops on lowlands, amounting to about \$7,000.

WARNINGS ISSUED.

At 2 a. m. of September 1, the following telegram, based on a midnight observation of heavy rain at Medford, Wis., was sent to Wausau: "Rainfall very heavy at Medford. Watch conditions at Wausau." No other warnings could be issued, as the river rose to flood stage at Wausau by the time observations were taken and telegraphed by river and rainfall observers in the Merrill-Wausau section, except Medford.

Forecasts and warnings were issued for towns from Stevens Point to Dubuque 2 to 10 days in advance of the flood crest. They were of much value, and helped greatly in saving property probably equal in value to the total losses from the flood. Much hay in stack and other crops were saved; a large amount of stock was removed to safety from lowlands and islands, and loss to considerable other property was prevented.

The following extracts relative to the flood and the warnings issued are from some of the letters received:

Magnus Swenson, president Wisconsin River Power Co., Prairie du Sac, Wis.: "We wish to express our appreciation of the valuable service the Weather Bureau has rendered in keeping us informed with reference to the floods in the Wisconsin River. The predictions have not only been very accurate, but we have received them in ample time to enable us to prevent serious damage and loss."

Max H. Ninman, Sauk City, Wis.: "Cattle, principally young stock, which are pastured on the lowlands and adjacent islands, were taken home to the farmers' yards in time to save them, thanks to the warnings sent out by the Weather Bureau, which were transmitted to the farmers along the route by the carriers, and by telephone."

Boscobel, Wis.: "Farmers were able to save hay that was cut and some in stack; also a good many boats that would have sustained injury had the warnings not been sent."

L. E. Hammonds, Woodman, Wis.: "Farmers and stockmen made a great saving by the warnings sent me."

A. C. V. Elston, Muscoda, Wis.: "Warnings appreciated. Cattle and other stock moved to prevent loss. Large hay loss, amounting to several thousand dollars."

Warnings issued 7 to 10 days in advance of the flood crest from Dubuque to Prairie du Chien were verified within two-tenths of a foot, and Government contractors, the United States engineers, and others were given abundant time to prepare for high water without loss. Many farmers saved crops and other property; for instance, one Dubuque County farmer harvested 25 acres of millet after the warnings were issued. A week later the field was under water.

The crest stage at Dubuque was 10.7 feet, the highest in September in 27 years, with one exception. The river between Dubuque and Prairie du Chien was only a few tenths of a foot lower than at Dubuque.

TABLE 1.—Climatological data for September, 1912. District No. 5, Upper Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Greatest daily range.	Total.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.			
<i>North Dakota.</i>																			
Amenia.	Cass.	954	15	54.6	-2.4	93°	5	27	26†	42°	6.54	+4.81	1.57	1.0	12	14	5	11	nw.
Bottineau.	Bottineau.	1,638	17	49.4	-7.7	82	5	19	29	41	2.60	+1.09	0.62	0	10	6	8	16	nw.
Bowbells.	Burke.	1,958	—	49.8	—	80	4	23	28	45	3.12	—	1.10	0	10	19	1	10	—
Cando.	Towner.	1,488	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Crosby.	Divide.	6	48.9	—	—	79	8	20	29	42	1.90	—	0.94	T.	8	19	2	9	nw.
Devils Lake.	Ramsey.	1,482	7	51.4	-4.2	84	3	23	26	34	1.11	-0.28	1.57	T.	10	8	8	14	w.
Donnybrook.	Ward.	1,760	13	49.4	-6.2	83	4	23	25†	39	3.20	+1.90	1.57	0	7	11	4	15	nw.
Dunseith.	Rolette.	15	40.7	-5.3	81	4†	20	29	39	3.18	+1.51	0.70	0.5	11	9	8	8	13	nw.
Edmore.	Ramsey.	1,524	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Fessenden.	Wells.	1,610	—	51.3	—	92°	3	20	29	49	2.17	—	0.90	T.	6	11	4	15	nw.
Formian.	Sargent.	1,249	18	53.8	-4.4	95	8	21	27	40	1.99	+0.19	0.70	2.0	S	15	3	12	nw.
Grafton.	Walsh.	827	21	53.2	-2.4	94	5	22	28	42	2.11	+0.13	0.33	0.2	11	12	8	10	nw.
Granville.	McHenry.	1,504	6	47.1	—	84	4	18	29	41	2.23	—	0.55	T.	8	12	7	11	nw.
Hannah.	Cavalier.	1,568	7	49.3	—	85°	5	19	26	35	7.67	—	2.40	T.	—	—	—	—	nw.
Hansboro.	Towner.	4	50.6	—	—	79	5	22	26†	37	3.87	—	1.45	T.	11	18	4	8	nw.
Hillsboro.	Trail.	901	7	55.2	—	93	5	26	29	45	6.53	—	1.51	T.	13	10	10	10	nw.
Lakota.	Nelson.	1,579	6	50.3	—	89	5	20	29	37	1.43	—	0.50	6.0	7	9	11	0	w.
Langdon.	Cavalier.	1,615	17	49.5	—	83	5	22	26	37	4.98	—	1.82	—	9	11	0	19	n.
Larimore.	Grand Forks.	1,134	17	52.0	-3.1	89	3	23	29	42	3.09	+1.59	1.05	3.0	14	14	3	13	n.
Lision.	Ransom.	1,091	8	53.4	-5.9	94	5†	22	27	54	2.95	+1.24	0.94	0.5	12	17	2	11	nw.
McKinney.	Renville.	1,640	18	51.0	-2.1	86	4	20	25	42	2.94	-1.41	1.05	0	7	7	13	10	nw.
McLeod.	Ransom.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Manfred.	Wells.	1,605	11	51.8	—	90	3†	20	28	40	1.65	—	0.61	T.	6	14	8	8	nw.
Mayville.	Trail.	975	16	54.0	-1.4	92	5	25	29	38	6.33	+3.71	1.45	T.	11	16	0	14	nw.
Milnor.	Sargent.	1,097	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	n.
Minot.	Ward.	1,557	14	50.2	-7.4	85	5	22	29	41	2.13	+0.93	0.85	0	11	9	6	15	w.
Oriska.	Barres.	820	19	54.1	-2.0	92	5	24	29	38	3.49	+1.33	1.04	—	9	10	8	12	nw.
Park River.	Walsh.	1,270	7	53.2	—	92	5	25	29	36	3.45	—	0.94	T.	13	6	19	5	nw.
Pembina.	Pembina.	998	9	53.7	—	91	5	25	29	38	1.66	—	0.50	T.	11	8	10	12	w.
Power.	Richland.	789	14	50.8	-2.9	85	5	24	26	44	1.55	-0.78	0.46	0	9	14	1	15	w.
Pratt.	McHenry.	1,020	20	53.5	-4.7	93	5	22	26	41	3.01	+1.25	1.26	1.0	8	13	6	11	nw.
Towner.	do.	—	4	51.4	—	83	4†	21	29	44	2.51	—	0.73	1.3	7	7	11	12	nw.
University.	Grand Forks.	830	20	53.7	-1.7	92	5	24	29	35	5.97	+3.87	1.64	2.0	13	7	8	15	n.
Wahpeton.	Richland.	962	20	56.4	-2.3	101	8	25†	58	1.75	-0.38	0.60	—	0	7	14	2	14	nw.
Walhalla.	Pembina.	966	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Westhope.	Bottineau.	6	50.8	—	—	83	4	22	29	47	2.32	—	0.62	0	8	6	18	6	nw.
Willow City.	do.	1,471	19	51.8	-2.5	82	4	20	29	46	2.99	+1.26	0.84	0	8	—	—	—	nw.
<i>Minnesota.</i>																			
Albert Lea.	Freeborn.	1229	21	61.3	+ 0.3	95	8	29	26	36	1.65	-1.75	0.70	0	4	10	15	5	se.
Alexandria.	Douglas.	1391	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	w.
Angus.	Polk.	870	10	52.8	-3.0	92	5	20	29	48	6.18	—	1.58	1.5	10	11	7	12	sw.
Bagley.	Clearwater.	6	51.8	—	—	91	8	23	27	41	4.97	—	1.30	6.0	9	11	12	7	sw.
Baudette.	Beltrami.	1,084	2	—	—	92	—	—	—	—	—	—	—	—	—	—	—	—	sw.
Beardsley.	Bigstone.	1,090	16	53.9	-2.6	98	8	24	27	46	2.87	-0.92	0.69	2.0	9	10	12	8	nw.
Beaujieu.	Mahnomen.	1,200	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Bemidji.	Beltrami.	1,400	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Bird Island.	Renville.	1,039	22	59.7	-1.1	95	8	26	27	38	2.01	-0.95	0.78	T.	8	12	6	12	sw.
Brainerd.	Crow Wing.	1,215	5	58.3	—	92	8	25	28	33	1.61	—	0.62	0	7	13	4	13	se.
Caledonia.	Houston.	1,179	19	60.6	0.0	89	9	33	26	30	3.00	-1.09	1.30	0	12	15	5	10	sw.
Campbell.	Wilkin.	984	6	54.4	—	98	8	24	27	48	3.51	—	1.37	1.0	10	16	1	13	se.
Cass Lake.	Cass.	1,300	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Collegeville.	Stearns.	1,282	19	59.3	-1.2	91	5†	29	26	33	2.27	-0.25	0.61	0	11	15	11	4	nw.
Crookston.	Polk.	862	23	53.6	-2.9	92	5	27	29	39	6.39	+4.39	1.90	3.0	12	14	4	12	se.
Detroit.	Becker.	1,364	16	53.6	-2.8	94	8	25	29	46	4.92	+2.26	1.50	3.0	10	15	6	9	nw.
Ely.	St. Louis.	1	56.6	—	—	88	5	28	30	45	3.35	—	3.72	T.	12	10	11	9	nw.
Fairmont (near).	Martin.	1,240	25	59.8	-1.0	90	5†	29	26	30	2.34	-0.77	0.62	T.	10	14	9	7	se.
Fairbault.	Rice.	1,003	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.
Farmington.	Dakota.	902	24	60.8	+ 0.4	96	5†	27	27	36	1.90	-1.56	1.05	0	8	14	3	13	sw.
Fergus Falls.	Fergus Falls.	1,210	20	56.8	-2.1	92	5†	26	29	44	3.82	+1.50	0.98	2.4	10	11	8	11	se.
Fort Ripley.	Crow Wing.	1,136	4	57.0	—	94	8	20	28	39	1.95	-0.38	0.47	0	8	12	0	18	sw.
Fosston.	Polk.	1,290	2	53.6	—	89	5	23	29	44	5.19	—	1.20	6.5	13	10	11	9	se.
Glencoe.	McLeod.	1,000	15	61.3	+ 1.6	93	5†	27	27	37	1.55	-2.04	1.00	0	4	16	13	1	sw.
Grand Meadow.	Mower.	1,338	24	60.5	+ 0.6	93	8	27	26	38	1.82	-1.58	0.34	0.2	12	9	14	7	nw.
Gull Lake Dam.	Cass.	1,215	1	57.7	—	91	8	24	28	34	2.29	—	0.75	0	9	10	13	7	nw.
Hallock.	Kittson.	815	13	53.2	-1.9	91	5	22	29	39	3.50	+ 0.60	1.50	T.	11	8	1	21	n.
Hastie.	Norman.	870	6	52.3	—	94	5	22	29	43	6.09	—	1.43	—	14	16	1	13	sw.
Hinckley.	Pine.	1,050	7	—	—	92	5	27	27	33	4.40	—	0.90	2.0	10	8	6	16	s.
International Falls.	Koochiching.	1,112	9	55.4	—	92	5	27	29	38	2.06	—	0.20	2.0	8	10	11	10	n.
Itasca State Park.	Clearwater.	1,500	13	57.6	—	94	8	26	29	31	2.39	—	0.80	0	5	16	1		

TABLE 1.—Climatological data for September, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.			Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.			Greatest in 24 hours.	Total snowfall unmeted.	Number of rainy days.	Number of clear days.			
					Highest.	Date.	Lowest.							Total.	Departure from the normal.	Greatest in 24 hours.							
Minnesota—Continued.																							
Reeds Landing.	Wabasha.	681	16					93	8	27	29	42	1.50		0.68	0	8	14	0	16	se.	John Deschnean.	
Rochester.	Olmstead.	991	7	59.8				91	5	15	29	47	3.81		0.40	0	10	11	11	8	s.	Mary P. Cram.	
Roseau.	Roseau.	1,040	3	52.4				93	8	30	26	34	4.33	+ 0.80	1.12	1.4	13	10	10	10	ne.	M. J. Hegland.	
St. Charles.	Winona.	850	21	61.2	+ 0.2			60.8	1.5	95	5	27	28	36	1.78	- 1.53	0.64	0	9	18	4	s.	S. W. Gleason.
St. Cloud.	Sherburne.	1,020	35	60.8	+ 1.5			95	8	32	27	28	2.17	- 2.15	0.67	0	11	20	8	2	w.	J. H. Capser.	
St. Paul.	Ramsey.	940	41	60.7	+ 0.4			95	8	32	27	28	2.17	- 2.15	0.67	0	11	20	4	4	s.	U. S. Weather Bureau.	
St. Peter.	Nicollet.	825	17	60.9	- 1.1	94	8	26	29	36	0.95	- 2.83	0.48	0	2	11	16	3	3	s.	State Hospital.		
Sandy Lake Dam.	Aitkin.	1,234	19	56.0	- 0.6			89	5†	29	27†	38	2.69		0.60	T.	10	10	6	14	w.	U. S. Engineer Corps.	
State Sanatorium.	Cass.	4	55.8										2.35		0.72	0	10	16	4	10	sw.	Dr. L. B. Ohlinger.	
Stillwater.	Washington.	604	6												0.92	0	8	18	6	6	s.	Oscar Ostrom.	
Taylors Falls.	Chisago.	759	5	60.4				93	8	26	27	32	2.44		1.33	6.0	11	14	6	10	w.	E. W. Lown.	
Thief River Falls.	Pennington.	1,137	1	52.9				90	5†	29	29	42	6.40		1.32		5	20	0	10	s.	E. D. Davis.	
Tracy.	Lyon.	1	62.3					98	8	26	26†	44*	1.80		1.43	5.0	11	4d	8d	14d	w.	P. H. Holm.	
Warren.	Marshall.	859	1	52.2				95*	5	29	29	52d	5.38		1.20	6.0	12	11	7	12	s.	G. A. Sawyer.	
Warroad.	Roseau.	1,069	2	48.4				91	5	17	27†	47	6.42		0.79	0	8	9	13	8	se.	H. H. Haught.	
Winnebago.	Faribault.	1,100	14	60.6	- 1.3	95	8	29	26	36	2.79	- 0.37	0.95	0	12	10	5	15	nw.	U. S. Engineer Corps.			
Winnibigoshish.	Itasca.	1,300	24	56.2	- 0.1	90	8	27	29	34	3.66	+ 0.52	1.05	0	12	8	16	8	6	sw.	P. C. Myers.		
Winona.	700	16	63.6	+ 1.5	96	8	30	29	32	3.61	- 0.07	0.99	0	10	15	4	11	11	sw.	M. P. Mann.			
Worthington.	Nobles.	1,593	17	56.6	- 4.1	85	5†	26	27	30	2.51	- 0.81	1.11	0	10	15	4	11	11	s.	W. C. Rowell.		
Zumbrota.	Goodhue.	917	16	59.4	- 1.2	93	8	28†	37	1.80	0.73	0	7	18	9	3	3	3	sw.				
South Dakota.																							
Milbank.	Grant.	1,148	21	55.6	- 5.1	96	8	24	27	39	1.87	+ 0.01	0.79	2.3	8	15	5	10	16	nw.	I. T. Patridge.		
Sisseton.	Roberts.	1,202	6	55.4		93	5	28	26	36	1.32		0.65		8	14	0	16		s.	George Gray.		
Wisconsin.																							
Antigo.	Langlade.	1,489	18	58.6	+ 0.6	90	5†	26	29	30	1.99		0.65	T.	9	18	2	10	10	w.	Elton C. Larzelere.		
Barron.	Baron.	1,115	21	57.0	- 1.5	90	8	26	29†	32	3.39	+ 0.25	1.09	0	7	18	9	3	3	w.	Wm. A. Kent.		
Beloit.	Rock.	750	46	63.6	0.0	92	6	32	29	27	5.37	+ 1.98	2.25	0	10	16	4	10	10	s.	Smith Observatory.		
Big St. German Dam.	Vilas.	1,590	2	56.6		91	5	24	28	41	2.91		0.79	0	10	12	13	5	5	sw.	Fred Hessen.		
Brodhead.	Green.	812	14	64.1	+ 0.7	96	9†	30	29	33	5.73	+ 2.10	1.12	0	10	17	17	8	8	s.	Hector D. Kirkpatrick.		
Burnett.	Dodge.	880	8	60.9		91*	7	27†	29†	34*	4.84		1.43	0	13	8°	7°	12°	12°	sw.	Geo. W. Smith.		
Cornell.	Chippewa.	1,025	0										2.26		0.68	0	7	14	8	8	sw.	Brunet Falls Mfg. Co.	
Cottage Grove.	Dane.	888	1										6.23		2.61	0	13	11	13	6	sw.	John E. Mellish.	
Darlington.	Lafayette.	867	6	62.1		95	9†	28	30	37	4.92		0.90	0	10	17	0	13	13	s.	F. J. O'Neill.		
Deerskin Dam.	Forest.	1,685	2			91	8						3.46		1.13	T.	6	9	13	8	w.	Wm. E. O'Neal.	
Delavan.	Walworth.	920	21	62.8	- 0.0	95	6	30	29	41	4.85	+ 1.44	2.71	0	9	14	6	10	10	sw.	Elwood S. Austin.		
Dodgeville.	Iowa.	1,116	12	63.0	- 0.3	93b	9†	30*	26	29b	4.27	+ 1.76	1.20	0	8	16 ^b	18 ^b	15	15	se.	Thomas Gibson.		
Downing.	Dunn.	983	10	58.4*	- 0.2	90*	5†	23*	28	33*	1.92	- 1.85	0.60	0	6	6 ^a	0	23 ^a	0	w.	Eugene F. Stoddard.		
Eau Claire.	Eau Claire.	800	21	60.6	- 0.5	91	5†	29	29	36	3.08	- 0.88	0.93	0	8	12	12	12	12	w.	Robert D. Whitford.		
Glen Flora.	Rusk.	1,475	0	57.6*		90*	5†	23*	29	34*	3.27		1.20	T.	10	19	4	7	7	sw.	F. W. Oelschlaeger.		
Grand Rapids.	Wood.	1,021	13	60.4*	- 0.6	93*	9	27	29	34	2.75	- 0.18	0.93	0	8	20 ^b	4 ^b	5 ^b	5 ^b	sw.	Willis B. Raymond.		
Grantsburg.	Burnett.	1,095	21	60.6	+ 2.0	95	6	25	29†	32	3.50	- 0.68	1.80	T.	7	12	4	14	14	sw.	Theodore Olsen.		
Hancock.	Waushara.	1,091	20	62.6	- 1.6	92	9†	31	29	30	5.31	+ 2.43	3.11	0	11	17	5	8	8	nw.	Frederick B. Hamilton.		
Hatfield.	Jackson.	973	18	59.8	- 1.0	92	9	23	29	37	4.02	+ 0.53	2.13	0	7	5	14	11	11	se.	Walter S. Woods.		
Hayward.	Sawyer.	1,197	21	54.0*	- 3.6	92 ^b	5	25	29	36 ^b	3.35	- 1.58	0.90	0	7	14 ^b	7 ^b	7 ^b	7 ^b	sw.	Emil V. Wernick.		
Hillsboro.	Vernon.	1,000	21	59.3	- 1.2	91	9	24	29†	39	3.74	+ 0.69	0.92	0	8	12	15	3	3	sw.	Edward S. Koepenick.		
Koepnick.	Langlade.	1,683	21	58.6	- 0.3	88	5†	24	29	32	4.80	+ 0.55	2.50	T.	10					sw.	W. J. Lovett.		
Lac du Flambeau.	Vilas.	2																					
La Crosse.	La Crosse.	714	40	62.0	+ 0.3	93	9	32	29	31	1.61	- 2.51	0.53	0	11	9	12	9	9	s.	U. S. Weather Bureau.		
Lake Mills.	Jefferson.	897	21	62.7	+ 0.3	94	5	30	29	32	4.79	+ 1.60	1.06	0	14	11	11	8	8	w.	S. Newton Dexter Smith.		
Lancaster.	Grant.	1,070	21	62.9*	+ 0.9	93*	9†	28*	30	29*	4.18	+ 0.87	0.85	0	10	2 ^c	15 ^c	10 ^c	10 ^c	w.	Edward Pollock.		
Long Lake.	Oneida.	1,582	4	55.8		92	5	20	28	47	2.99		1.73	T.	12	13	9	8	8	w.	Louis Frank.		
Madison.	Dane.	974	43	62.6	- 1.5	91	9	33	26	28	5.62	+ 2.44	2.71	0	10	12	9	9	9	sw.	U. S. Weather Bureau.		
Mather.	Juneau.	962	8	60.0		92	9	27	26	38	3.67		1.51	0	12	10	7	13	13	w.	Frank Evans.		
Mauston.	Rock.	882	16	60.2	- 0.6	89	9	28	29	32	5.52	+ 2.36	2.30	0	10	18	8	4	4	sw.	Eugene L. Hitchcock.		
Meadow Valley.	Clark.	974	21	60.4	+ 0.1	93	9	24	29	37	3.67	+ 0.05	2.20	0	6	2	25	3	3	w.	Charles H. Johnson.		
Medford.	Taylor.	1,420	23	58.6	- 1.1	90	5	26	29	32	4.75	+ 0.70	2.80	0	6	19	7	4	4	w.	Wm. Zeit.		
Merrill.	Lincoln.	1,267	6	61.5*		94*	5	25	29	36	3.98		1.90	0	9	19*	4 ^b	6 ^b	6 ^b	sw.	Wm. T. Hunter.		
Minoqua.	Oneida.	1,604	8	58.0		89	5	27	28	41	2.42		0.45	T.	14	8	14	8	8	n.	Benjamin W. Applebee.		
Mondovi.	Douglas.	735	4	59.6*		93*	5	27	29	31	3.82		0.68	0	11	9	5	6	6	sw.	Dr. Charles Hebard.		
Mount Horeb.	Dane.	1,226	8																				

TABLE 1.—Climatological data for September, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Greatest in 24 hours.	Departure from the normal.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.				
<i>Iowa—Continued.</i>																					
Alta.	Buena Vista.	1,513	21	59.4	-3.5	93	8	29	26	35	3.62	+ 0.44	0.87	0	13	12	11	7	s.	David E. Hadden.	
Ames.	Iowa.	721	36	63.0	+ 0.5	95	8†	29	26	33	3.01	- 0.24	0.68	0	11	13	10	7	sw.	C. Schadt.	
Baxter.	Story.	926	36	61.8	- 1.7	95	9	28	29	37	6.61	+ 3.22	2.43	0	13	12	11	7	sw.	Iowa State College.	
Belle Plaine.	Jasper.	998	12	62.1	- 0.9	101	8	27	26	36	6.90	+ 3.48	1.34	0	16	14	8	8	sw.	W. R. Vandike.	
Belmond.	Benton.	825	22	63.5	- 0.1	97	8†	29	25	35	4.87	+ 1.91	0.91	0	12	9	9	12	se.	S. P. Van Dike.	
Bloomfield.	Wright.	5	60.2	92	8	29	26†	34	2.98	.....	0.88	.....	0.88	0	9	3	18	9	sw.	Geo. P. Hardwick.
Bonaparte.	Davis.	5	66.4	102	8	30	26	37	0.96	.....	0.27	.....	0.27	0	8	13	0	17	sw.	Albert Power.
Boone.	Van Buren.	21	65.8	- 1.6	100	5	30	26†	38	3.78	- 0.26	1.60	0	12	13	4	13	.....	B. R. Vale.	
Britt.	Boone.	1,134	7	59.6	90	8†	30	26†	31	5.94	.....	2.16	0	15	13	4	13	.....	C. F. Henning.	
Buckingham.	Hancock.	1,236	15	60.2	- 1.5	93	8	27	26	36	3.32	.....	1.25	0	14	9	17	4	s.	L. M. Goodman.
Burlington.	Tama.	12	.....	.....	.....	.....	.....	.....	.....	4.05	+ 1.69	1.13	0	10	13	7	10	nw.	J. S. Guynn.	
Carroll.	Des Moines.	544	16	66.7	+ 0.5	100	8†	33	26†	33	2.50	- 0.56	1.35	0	6	19	4	7	s.	Max. E. Poppe, Jr.	
Cedar Rapids.	Carroll.	1,265	22	58.6	- 4.4	91	7†	29	26†	35	5.65	+ 2.76	1.78	0	14	11	11	8	nw.	Mrs. J. J. Wolfe.	
Charles City.	Linn.	733	30	63.8	- 0.2	99	8	33	26†	34	3.63	+ 0.81	0.67	0	11	14	4	12	w.	R. S. Toogood.	
Clinton.	Floyd.	1,015	21	60.2	- 1.5	93	8	29	26	34	1.53	+ 1.27	0.51	0	12	5	11	14	s.	U. S. Weather Bureau.	
Columbus Junction.	Cerro Gordo.	1,241	14	63.7	+ 1.5	95	5	33	26†	31	1.41	- 1.55	0.71	0	3	23	1	6	sw.	Oscar Stevens.	
Decorah.	Clinton.	593	45	65.4	+ 2.1	98	4	31	29	36	2.89	- 0.42	1.22	0	8	11	10	9	s.	A. E. Reid.	
Davenport.	Louisa.	598	11	66.0	- 0.5	97	8†	32	26†	34	1.78	- 1.37	0.65	0	6	20	3	7	n.	J. B. Johnston.	
Delaware.	Scott.	580	41	66.4	+ 1.7	97	8	34	29	25	2.28	- 0.86	1.36	0	9	11	8	11	sw.	U. S. Weather Bureau.	
Delaware.	Winneshiek.	875	19	62.2	+ 0.1	94	9	29	28	37	3.37	- 0.36	1.35	0	10	.....	.....	.....	s.	F. H. Baker.
Des Moines.	Delaware.	1,083	21	62.2	+ 0.4	92	8†	29	26†	33	5.35	+ 2.08	1.49	0	11	12	15	5	ne.	William Ball.	
Des Moines.	Polk.	861	34	63.2	- 1.8	95	9	33	29	30	4.20	+ 2.13	1.78	0	16	10	9	11	s.	U. S. Weather Bureau.	
Dubuque.	Dubuque.	639	39	63.8	+ 0.2	94	9	33	29	30	4.42	+ 0.83	0.83	0	13	11	7	12	sw.	Do.	
Earlham.	Madison.	10	61.0	- 1.1	91	8	27	26	33	5.31	+ 1.52	2.30	0	13	9	7	14	s.	George Phillips.		
Elkader.	Clayton.	727	33	62.2	- 0.3	94	9	29	26†	33	4.21	+ 0.37	1.10	0	11	19	3	8	se.	Chas. Reinecke.	
Elma.	Howard.	2	59.4	90	8†	28	26†	35	2.45	.....	0.44	.....	0.44	0	13	11	6	6	s.	H. A. Moore.
Estherville.	Emmet.	1,298	17	58.6	- 2.1	93	5†	30	26†	37	4.45	- 0.78	0.75	0	8	19	11	0	s.	A. O. Peterson.	
Fairfield.	Jefferson.	28	65.2	+ 1.2	97	8	30	29	38	0.83	- 2.64	0.32	0	8	15	5	10	s.	R. M. McKenzie.		
Fayette.	Fayette.	1,003	22	60.4	- 1.9	91	9	29	26†	33	5.01	+ 1.78	2.40	0	9	15	6	9	sw.	R. Z. Latimer.	
Forest City.	Winnebago.	1,226	18	59.8	- 2.2	93	7	30	26†	33	2.11	- 1.51	1.00	0	5	13	9	8	sw.	J. A. Peters.	
Fort Dodge.	Webster.	1,120	12	61.2	- 1.4	96	8	31	26	36	4.03	- 0.54	0.80	0	11	.....	.....	.....	sw.	J. F. Monk.
Fort Madison.	Lee.	516	63	.....	.....	.....	.....	.....	.....	2.42	- 1.39	1.70	0	5	10	10	10	sw.	Miss L. A. McCready.	
Gilman.	Marshall.	1,052	13	59.6	- 2.1	95	8†	29	26†	35	2.71	+ 4.31	2.06	0	12	.....	.....	.....	s.	J. L. Wylie.
Grand Meadow.	Clayton.	1,180	21	59.2	- 2.7	88	9	30	26	29	3.95	+ 0.32	0.91	0	10	7	16	7	sw.	F. L. Williams.	
Grinnell.	Poweshiek.	1,023	20	63.4	- 0.4	98	8	29	26	36	5.34	+ 2.99	1.29	0	11	14	4	12	n.	D. W. Brainard.	
Grundy Center.	Grundy.	976	21	63.4	+ 0.3	95	9	31	26	38	5.64	+ 2.39	2.00	0	15	16	7	7	sw.	J. B. Calderwood.	
Guthrie Center.	Guthrie.	1,077	17	61.4	+ 2.5	93	1	29	26	36	9.32	+ 6.23	4.10	0	17	12	7	11	sw.	D. G. Beardsley.	
Hampton.	Franklin.	1,155	22	61.7	- 1.2	95	8	31	26	32	3.31	- 0.25	0.80	0	13	6	21	3	sw.	E. C. Grenelle.	
Humboldt.	Humboldt.	1,094	24	59.8	- 2.9	95 ^d	8	28	26†	37	.....	.....	0.89	0	13	.....	.....	.....	sw.	J. P. Peterson.
Independence.	Buchanan.	921	48	62.0	+ 0.3	93	8†	29	26	34	6.23	+ 2.28	1.00	0	18	14	7	9	uw.	R. E. Dudley.	
Indianola.	Warren.	929	21	63.0	- 2.5	95	8†	32	26	29	6.38	+ 32.8	1.50	0	14	9	5	16	sw.	Prof. J. L. Tilton.	
Iowa City.	Allamakee.	1,180	21	59.2	- 2.7	88	9	30	26	29	3.95	+ 0.32	0.91	0	10	7	16	7	sw.	Prof. A. G. Smith.	
Iowa Falls.	Scott.	683	52	63.7	+ 0.1	95	8	29	26	30	2.67	- 1.08	0.74	0	15	13	6	11	sw.	J. B. Parnelee.	
Jefferson.	Greene.	1,170	19	59.4	- 2.2	95	8†	29	26†	32	4.51	+ 1.54	0.99	0	15	12	6	12	se.	Ora M. Hall.	
Keeokuk.	Lee.	547	41	67.4	+ 1.0	98	8	34	26	38	5.78	+ 2.31	1.81	0	17	9	10	11	s.	U. S. Weather Bureau.	
Kenoshaqua.	Van Buren.	644	20	64.6	- 2.3	99	8	27	30	37	2.54	- 1.86	0.91	0	10	8	8	14	sw.	J. H. Landes.	
Knoxville.	Marion.	920	17	64.0	- 2.2	95	8†	32	26	31	4.94	+ 1.42	1.03	0	12	11	3	16	se.	Casey and Bellville.	
Lacona.	Warren.	13	.....	.....	.....	.....	.....	.....	.....	4.95	+ 1.12	1.15	0	13	4	17	9	.....	J. B. Alter.	
Lansing.	Allamakee.	576	12	.....	.....	.....	.....	.....	.....	3.06	.....	0.80	0	14	.....	.....	.....	.....	s.	Chas. R. Serene.
Le Claire.	Scott.	947	20	62.6	- 1.5	99	8	29	26†	39	5.50	+ 2.55	1.45	0	19	10	10	10	sw.	Miss M. T. Disney.	
Marshalltown.	Marshall.	1,132	15	60.0	- 3.0	91	8	29	26	37	1.47	- 0.89	0.40	0	6	13	9	8	se.	Jacob Eige.	
Mason City.	Cerro Gordo.	1,132	15	60.0	- 3.0	91	8	29	26	37	4.84	.....	1.04	0	10	17	6	7	s.	J. S. Muhs.
Monroe.	Jasper.	729	31	64.8	- 0.2	95	9	31	26	30	1.48	- 2.20	0.70	0	7	16	8	6	sw.	J. A. Dibel.	
Mount Pleasant.	Henry.	1,279	36	60.9	- 0.6	95	9	31	26	30	1.55	- 2.17	0.54	0	11	24	2	4	s.	J. W. Edwards.	
Muscatine.	Muscatine.	52	.....	.....	.....	.....	.....	.....	.....	3.06	.....	0.80	0	14	.....	.....	.....	.....	s.	William Mois.
New Hampton.	Chickasaw.	1,199	15	61.0	- 0.7	91	9	30	26	29	2.79	- 0.72	0.54	0	13	13	6	6	sw.	A. F. Kemman.	
Northwood.	Worth.	1,122	16	59.0	- 1.8	98	8	29	26	32	2.67	- 0.68	0.75	0	0	9	11	12	sw.	Chas. H. Dwelle.	
Olin.	Jones.	707	14	63.6	+ 0.5	95	5†	28	29	33	3.26	+ 0.03	0.80	0	0	9	15	10	s.	Dr. F. W. Port.	
Osage.	Mitchell.	1,184	25	60.9	+ 0.9	93	8	30	26	33	3.74	+ 0.18	1.24	0	9	15	10	5	sw.	Lester Conrad.	
Oskaloosa.	Mahaska.	843	36	64.0	- 0.5	99	9	29	26	33	1.54	- 1.49	0.41	0	9	14	2	14	sw.	Joseph Boyd.	
Ottumwa.	Wapello.	649	17	65.0	- 2.2	104	8	30	27†	36	6.00	- 0.34	0.50	0	2	7	14	9	nw.	Chester Potter.	
Pella.	Marion.	877	10	63.0	- 3.4	98	8	29	26	37	4.98	+ 2.48	1.18	0	14	18	1	11	nw.	J. H. Ver Steeg.	
Perry.	Dallas.	975	11	61.8	- 2.6	92	1	30	29	35	6.75	+ 4.05	2.33	0	13	10	9	11	se.	S. J. Brumfield.	
Pocahontas.	Pocahontas.	1,248	8	60.6	- 0.8	93	1†	30													

TABLE 1.—Climatological data for September, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.			
				Mean.			Departure from the normal.			Lowest.			Date.								
				Highest.	Data.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unadjusted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.					
<i>Indiana.</i>																					
Collegeville.....	Jasper.....	13	66.7	+ 1.6	97	9	31	27†	35	1.58	- 1.44	0.46	0	6	13	13	4	sw.	Otto Miller.		
Knox.....	Starke.....	716	66.0	.....	90	1	33	30	27	3.78	.....	1.30	0	10	17	9	4	s.	W. R. R. Tatman.	
Laporte.....	Laporte.....	810	67.0	+ 2.7	92	1†	34	27†	49	1.81	- 1.36	0.50	0	8	18	3	9	sw.	Wm. M. Walton, jr.		
Plymouth.....	Marshall.....	790	65.6	.....	89	5†	32	30	29	3.22	.....	0.69	0	9	17	7	6	sw.	J. W. Siders.	
South Bend.....	St. Joseph.....	726	66.4	+ 0.8	93	6†	37	30	27	4.32	+ 1.29	2.27	0	12	12	12	6	se.	Henry H. Swain.		
<i>Illinois.</i>																					
Aledo.....	Mercer.....	738	66.0	+ 0.6	97	5†	32	26	30	1.77	- 2.39	0.79	0	9	4	16	10	nw.	William B. Frew.		
Alexander.....	Morgan.....	670	67.6	- 0.4	96	8	32	30	32	1.62	- 2.20	1.14	0	8	15	5	10	sw.	George H. Hall.		
Antioch.....	Lake.....	861	64.2	+ 0.8	97	5	34	29†	38	2.25	- 1.93	1.35	0	3	10	7	13	w.	J. C. James.		
Astoria.....	Fulton.....	650	65.0*	- 0.4	96	6†	32 ^b	30	31 ^c	2.96	- 1.46	1.49	0	6	16	6	8	nw.	Edward V. Bohl.		
Aurora.....	Kane.....	678	64.5	+ 0.8	92	5†	31	30	29	2.55	- 1.08	0.90	0	8	7	12	11	sw.	W. Holden.		
Beardstown.....	Cass.....	448	.....																Mrs. L. M. Rice.	
Bement.....	Piatt.....	700	5																Rev. C. S. Adams.		
Bloomington.....	McLean.....	840	21	68.4	+ 0.4	97	5	32	30	1.35	- 2.41	0.50	0	8	19	3	8	sw.	Prof. H. N. Pearce.		
Cairo.....	Alexander.....	359	72.7	+ 2.5	95	10	46	27	26	2.33	- 0.14	1.07	0	6	19	6	6	n.	U. S. Weather Bureau.		
Carbondale.....	Jackson.....	412	71.9	.....	103	10	37	27	46	5.62	.....	2.68	0	7	22	5	3	sw.	State Normal University.	
Carlinville.....	Macoupin.....	663	70.2	+ 0.7	101	6†	32	30	36	1.98	- 1.56	1.40	0	4	20	5	5	w.	Blackburn College.		
Carlyle.....	Clinton.....	470	27																Hervey O. Jones.		
Chester.....	Randolph.....	380	20																F. A. Gollon.		
Clinton.....	Dewitt.....	727	2	68.4	.....	96	5†	33	30	1.96	.....	0.64	0	5	18	7	5	sw.	J. Frank Ziegler.	
Coatsburg.....	Adams.....	763	20	67.4	- 0.3	97	6	33	26	32	2.44	- 2.17	1.02	0	6	13	6	11	s.	Dr. J. R. Lambert.	
Cobden.....	Union.....	656	29	73.0	+ 1.8	101	10	42	27†	38	4.83	+ 1.39	2.05	0	7	19	5	6	n.	John Buck.	
Dakota.....	Stephenson.....	929	7	63.7	.....	96	9	30	26	35	4.75	.....	1.40	0	10	6	17	7	w.	Elmer Smith.
De atur.....	Macon.....	685	21	69.0	+ 0.9	99	7	32	30	35	1.50	- 2.12	0.64	0	4	20	6	4	sw.	Prof. J. H. Coonradt.	
Dixon.....	Lee.....	725	22	65.4	+ 0.7	94	5†	33 ^b	29	33	3.57	+ 0.04	2.50	0	5	20	7	3	sw.	H. U. Bardwell.	
Du Quoin.....	Perry.....	459	21	71.2	- 0.1	100	5†	37	30	39	2.87	- 0.01	1.04	0	5	23	5	2	sw.	G. H. Knetzger.	
Dwight.....	Livingston.....	600	19	67.4	+ 2.5	99	5	33	30	32	2.65	- 0.37	0.87	0	9	15	5	10	sw.	Edward O. Welsh.	
East St. Louis.....	St. Clair.....	481	1																W. M. Brown.		
Edwardsville.....	Madison.....	554	13																W. H. Morgan.		
Elgin.....	Kane.....	716	5	65.4	.....	94	5†	35	26†	30	3.11	.....	1.17	0	1	20	0	0	sw.	Elgin Observatory.
Ewing.....	Franklin.....	449	1																Ewing College.		
Fairview.....	Fulton.....	733	1																Abram Wilson.		
Galva.....	Henry.....	842	20	66.2	+ 0.6	99	6†	31	26	35	2.92	- 0.70	1.37	0	9	16	3	11	sw.	Prof. F. U. White.	
Grafton.....	Jersey.....	422	19																R. C. Goodrich.		
Greenville.....	Bond.....	635	34	71.8	+ 2.8	102	7†	36	30	35	1.58	- 2.04	1.10	0	6	22	2	6	s.	H. W. Reidlemann.	
Griggsville.....	Pike.....	650	27	68.0	- 0.1	97	7	36	26	28	4.29	+ 0.03	2.00	0	5	16	6	8	sw.	George F. Kneeland.	
Havana.....	Mason.....	475	20	68.5	- 0.7	100	6†	33	30	36	5.78	+ 1.49	2.81	0	4	18	3	9	nw.	L. L. Euteneuer.	
Henry.....	Marshall.....	500	24	67.2	+ 1.7	98	6	34	30	32	3.01	- 0.37	1.43	0	7	18	4	8	s.	Dr. F. A. Powell.	
Hillsboro.....	Montgomery.....	673	18	69.3	- 0.1	99	6†	35	30	34	1.51	- 2.09	0.72	0	5	22	4	4	sw.	Ira L. Woodward.	
Joliet.....	Will.....	609	21	67.3	+ 2.6	102	5	30	30	39	2.34	- 1.55	1.06	0	5	16	5	9	sw.	F. M. Muhlig.	
Kishwaukee.....	Winnebago.....	730	24	64.6	+ 1.0	96	8	32	29	35	3.86	+ 0.72	2.29	0	6	18	6	8	w.	George Stevens.	
La Grange.....	Cook.....	657	20	67.0	+ 2.8	94	5†	36 ^b	30	28 ^d	3.68	- 0.11	1.35	0	6	21	7	2	sw.	Prof. F. E. Sanford.	
La Harpe.....	Hancock.....	698	33	66.0	- 0.2	99	8†	30	25	31	1.70	- 2.52	0.90	0	5	23	3	4	sw.	George E. Campbell.	
Lanark.....	Carroll.....	883	23	63.7	+ 1.0	96	8†	29	29†	34	3.62	+ 0.18	1.12	0	10	18	6	6	se.	M. N. Wertz.	
La Salle.....	La Salle.....	536	7	66.4	+ 2.5	97	8	35	30	30	2.54	- 0.66	1.06	0	8	14	6	10	sw.	U. S. Weather Bureau.	
Lincoln.....	Logan.....	575	24	68.2	+ 0.8	97	4†	27	30	38	1.52	- 2.28	1.05	0	7	16	5	9	nw.	Prof. C. S. Ogleeve.	
Loami.....	Sangamon.....	624	12																H. C. Foster.		
Macomb.....	McDonough.....	700	8																State Normal University.		
Manteno.....	Kankakee.....	711	1																J. F. Schmeltzer.		
Martinton.....	Iroquois.....	633	25	67.0	+ 2.0	99	5†	32	30	35	1.92	- 1.65	0.83	0	7	16	5	6	sw.	Joseph H. Peltier.	
Mascoutah.....	St. Clair.....	425	22	71.0	+ 0.8	102	7†	35	30	41	2.67	- 1.06	2.01	0	5	19	5	6	se.	George Heinrich.	
Minonk.....	Woodford.....	745	19	68.8	+ 2.4	99	4†	33	26†	35	2.85	- 1.12	1.15	0	8	15	7	8	s.	M. H. Pfaffle.	
Monmouth.....	Warren.....	784	20	66.6	+ 0.4	98	8†	32	26	31	2.70	- 2.14	1.82	0	6	17	2	11	w.	Dr. J. C. Hutchison.	
Morris.....	Grundy.....	513	1	67.1	.....	98	5†	34	26†	35	2.22	.....	0.94	0	9	16	9	5	sw.	E. G. Cryder.
Morrison.....	Whiteside.....	688	18	64.8	+ 0.4	94	4†	31	29†	34	3.05	- 0.55	1.65	0	8	17	6	7	w.	S. A. Maxwell.	
Mount Vernon.....	Christian.....	638	13	68.8 ^b	+ 0.7	99 ^c	6	30	30	35 ^d	1.18	- 2.11	0.72	0	5	18	6	6	sw.	J. D. Lewis.	
Nashville.....	Jefferson.....	511	18	69.2	- 1.2	97	5	39	27†	37	3.60	- 0.11	1.05	0	7	20	4	6	n.	Theodore P. Stelle.	
Oregon.....	Washington.....	503	12																H. M. Potter.		
Ottawa.....	Ogle.....	702	3	65.1	.....	96	4†	30	29	31	4.18	.....	3.00	0	5	12	4	14	sw.	Samuel Ray.
Pana.....	La Salle.....	500	28	66.2	+ 0.8	98	3	35	30	38	2.86	- 0.69	1.15	0	7	10	10	10	nw.	Miss Maude M. Harris.	
Pawpaw.....	Christian.....	692	26	69.7 ^b	+ 1.8	99 ^c	6	38	30	30	0.80	- 2.83	0.55	0	3	19	1	10	sw.	Dr. G. N. Gilbert.	
Lee.....	Lee.....	930	12																A. C. McBride.		
Peoria.....	Peoria.....	609	56	67.0	+ 2.7	97	6	32	30	31	3.54	+ 0.42	1.47	0	9	13	9	8	s.	U. S. Weather Bureau.	
Pontiac.....	Livingston.....	546	10	68.8	+ 1.3	98	4†	35	26†	33	3.05	- 1.20	1.26	0	11	9	12	9	sw.	George Butterworth.	
Quincy.....	Adams.....	481	6	69.4	.....	100	8	37	26†	40	2.09	.....	1.47	0	3	12	7	11	sw.	Fred J. Brinkoetter.
Riley.....	McHenry.....	956	53	63.9	+ 2.2	92	5†	33	26†	37	3.60	- 0.12	2.13	0	8	12	7	11	w.	John West James.	
Roberts.....	Ford.....	774	1																R. E. Bradbury.		
Rockford.....	Winnebago.....	763	20	63.8	+ 0.4	93	5†	33	26	35	3.53	+ 0.51	2.00	0	9	11	7	12	sw.	Hosmer C. Porter.	

TABLE 2.—*Daily precipitation for September, 1912. District No. 5, Upper Mississippi Valley.*

TABLE 2.—*Daily precipitation for September, 1912. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for September, 1912. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for September, 1912. District No. 5—Continued.*

Stations.	Watershed.	Day of month.																													Total			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
<i>Illinois—Continued.</i>																																		
Beardstown || .	Illinois.																																	
Bement.	Mississippi.	.40																																1.35
Bloomington.	Illinois.																																2.33	
Cairo.	Mississippi.																																5.62	
Carbondale.	do.																																1.98	
Carlinville.	Illinois.																																2.17	
Carlyle.	Mississippi.																																4.18	
Chester || .	do.	.14																															1.96	
Clinton.	Illinois.	T.	.58																														2.44	
Coatsburg.	Mississippi.																																4.83	
Cobden.	do.																																4.83	
Dakota.		.22	T.																														4.75	
Decatur || .	Illinois.	T.	T.	T.																													1.50	
Dixon || .	Mississippi.	T.	T.																														3.57	
Du Quoin.	do.																																2.87	
Dwight.	Illinois.	.60																															2.65	
East St. Louis || .	Mississippi.																																2.33	
Edwardsville.	do.																																1.86	
Elgin.	Illinois.																																3.11	
Ewing.	Mississippi.																																	
Fairview.	Illinois.		T.	T.																													4.22	
Galva || .	do.																																2.92	
Grafton || .	Mississippi.																																3.10	
Greenville.	do.																																1.58	
Griggsville.	Illinois.																																4.29	
Havana.	do.																																5.78	
Henry.	do.		T.																														3.01	
Hillsboro || .	Mississippi.																																1.51	
Joliet.	Illinois.																																2.34	
Kishwaukee.	Mississippi.	.01	.07	T.	T.	T.																											3.86	
La Grange.	Illinois.	.74																															3.68	
La Harpe.	do.																																1.70	
Lanark.	Mississippi.	.12																															3.62	
La Salle.	Illinois.																																2.54	
Lincoln.	do.																																1.52	
Loami.	do.																																1.94	
Macomb.	do.																																2.39	
Manteno.	do.	.73																															1.83	
Martinton.	do.																																1.92	
Mascoutah.	Mississippi.	.02																															2.67	
Minonk.	Illinois.	.27																																2.85
Monmouth.	Mississippi.																																2.70	
Morris.	Illinois.																																2.22	
Morrison.	Mississippi.	T.																															3.05	
Morrisonville.	Illinois.																																1.18	
Mount Vernon || .	Mississippi.																																3.60	
Nashville.	do.		T.																														2.72	
Oregon.	do.																																4.18	
Ottawa.	Illinois.																																2.86	
Pana.	Mississippi.																																0.80	
Pawpaw.	Illinois.	.03																															2.52	
Peoria.	do.	.43																															3.54	
Pontiac.	do.	.70																															3.05	
Quiney || .	Mississippi.																																2.09	
Riley.	do.	.06	.14																														3.60	
Roberts.	Illinois.	.05																															1.20	
Rockford || .	Mississippi.	.03	T.																													3.53		
Rushville.	Illinois.																																4.09	
St. Charles.	do.	.78																															3.66	
St. Peter.	Mississippi.																																2.58	
Sparta.	do.	.25																															3.22	
Springfield.	Illinois.																																1.42	
Streator || .	do.	.03																															3.18	
Sullivan.	Mississippi.	T.																															1.02	
Sycamore || .	do.																																2.75	
Tiskilwa.	Illinois.																																2.53	
Walnut.	Mississippi.	T.	</																															

TABLE NO. 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 5, Upper Mississippi Valley.

Date.	North Dakota.										Minnesota.																	
	Bottineau. §§		Devils Lake.		Lisbon. §§		Minot. §§		Pembina.		Collegeville.		Crookston. §§		Grand Meadow.		Montevideo. §§		Moorhead.		New Ulm. §§		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1....	69	50	76	52	80	52	73	52	71	41	85	57	71	56	82	66	92	53	82	56	93	60	81	54	88	62	80	54
2....	76	36	75	45	81	42	71	48	81	37	82	55	75	47	82	65	85	50	78	46	78	59	75	50	80	57	85	52
3....	76	44	84	59	90	53	80	50	82	54	81	58	86	50	81	54	85	57	88	60	88	58	80	50	80	57	85	52
4....	81	58	82	63	91	63	75	53	81	61	88	66	79	65	89	67	92	67	90	94	61	87	62	91	69	82	64	84
5....	82	63	87	54	94	62	85	48	88	62	91	73	92	69	91	70	95	73	95	60	96	74	89	62	93	76	80	66
6....	71	44	75	51	87	40	73	45	78	42	89	56	80	49	82	60	83	53	82	44	82	61	85	64	80	64	87	55
7....	73	40	73	45	94	40	75	43	82	38	82	59	80	48	90	52	87	59	85	49	91	57	81	46	84	58	82	54
8....	75	46	75	52	94	44	75	44	76	55	91	70	89	50	93	67	98	63	94	65	97	61	90	65	95	72	90	56
9....	68	45	72	49	80	60	69	47	76	51	90	66	75	61	89	68	82	65	77	56	93	73	87	68	91	72	84	69
10....	71	38	66	43	68	47	70	39	71	48	74	57	65	50	78	67	72	56	63	48	72	63	73	55	75	60	72	58
11....	75	41	74	46	80	35	77	43	80	41	70	49	76	43	75	61	75	45	76	41	72	50	70	52	75	58	75	58
12....	62	40	65	49	75	40	75	41	78	46	76	53	78	45	78	57	81	46	76	43	78	49	77	54	76	53	72	58
13....	54	47	56	46	67	40	55	49	61	48	73	59	66	48	68	55	83	54	68	45	72	52	70	55	71	55	71	52
14....	48	35	46	39	56	37	49	38	48	38	65	43	51	45	69	45	68	40	51	43	68	43	62	43	66	47	60	45
15....	47	37	47	37	54	40	46	38	42	33	66	43	56	44	75	52	56	45	52	39	60	46	61	34	70	52	62	44
16....	51	38	48	34	56	30	47	38	59	36	62	43	56	36	64	48	62	37	58	32	60	44	59	48	60	48	55	45
17....	60	31	59	35	53	33	60	28	62	34	61	46	58	45	63	39	57	38	56	45	57	47	58	37	60	46	62	42
18....	74	33	71	40	73	32	78	37	80	36	63	46	69	40	59	45	67	40	69	36	60	47	62	42	64	49	68	41
19....	58	37	56	43	65	35	61	47	62	40	71	44	61	40	72	42	78	41	63	42	75	42	64	38	72	45	71	42
20....	49	42	48	40	55	39	48	38	44	41	65	46	52	45	60	50	60	45	53	43	61	44	60	42	58	47	62	41
21....	49	41	48	39	52	39	47	41	49	40	52	37	46	44	60	36	57	39	47	40	60	39	50	33	58	42	52	30
22....	56	37	58	39	62	40	60	40	51	38	54	40	55	40	63	42	53	30	58	40	61	42	50	35	55	44	50	37
23....	50	35	50	39	50	45	49	35	48	40	67	42	45	45	75	37	79	42	52	44	77	42	62	40	70	44	55	38
24....	46	31	43	34	45	36	46	31	40	31	66	53	37	35	70	44	63	46	44	32	66	43	70	51	62	40	62	40
25....	51	23	45	27	44	30	51	25	38	28	63	36	40	32	56	37	59	46	53	31	44	37	56	33	55	37	45	35
26....	50	21	47	23	47	24	49	30	42	24	45	29	44	32	52	27	49	27	46	28	51	29	41	30	49	34	45	33
27....	51	22	52	29	53	22	55	26	48	28	51	30	53	30	51	32	52	25	53	31	51	30	51	32	55	46	54	31
28....	47	25	43	28	56	24	43	33	45	29	55	34	49	32	58	35	56	29	54	33	58	30	54	21	56	37	56	30
29....	53	19	51	25	57	24	56	22	48	24	52	38	51	27	58	32	57	40	52	28	55	31	50	33	54	37	54	27
30....	69	26	68	34	70	30	74	33	46	29	63	36	60	31	62	32	72	33	66	34	67	33	61	34	63	35	54	28
Mns.	61.4	37.5	61.3	41.4	67.6	39.3	62.4	38.1	61.9	39.8	69.8	48.8	63.1	44.1	71.5	49.5	71.7	45.7	65.7	43.5	71.3	48.2	67.2	45.3	70.1	51.3	66.9	45.6
Wisconsin.																												
Date.	Wisconsin.										Iowa.																	
	Eau Claire.	Grantsburg.	Hancock.	La Crosse.	Madison.	Prentice.	Wausau.	Algona.	Cedar Rapids.	Charles City.	Davenport.	Des Moines.	Dubuque.	Keokuk.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	86	65	82	56	85	60	88	68	85	68	76	56	83	61	89	66	93	67	88	66	92	74	92	69	89	68	93	76
2....	79	66	87	55	84	68	80	59	80	67	76	58	80	67	82	69	81	61	84	73	77	67	82	69	90	74	88	70
3....	81	52	82	55	82	56	82	55	80	62	78	44	77	53	83	70	84	67	82	61	86	69	76	68	81	71	94	73
4....	83	68	81	56	81	69	89	70	88	63	78	56	88	69	95	68	90	69	95	73	90	75	93	74	95	75	95	75
5....	91	70	88	69	91	69	92	74	91	71	88	68	91	68	96	77	96	72	90	70	96	75	91	74	95	75	95	75
6....	84	68	95	74	89	70	83	60	87	70	88	66	83	62	81	69	86	71	79	58	93	71	85	70	87	71	92	73
7....	82	55	84	62	86	56	83	60	86	65	82	44	81	54	87	56	92	64	87	55	92	68	93	67	86	64	96	71
8....	91	55	85	65	92	65	92	71	91	66	87	62	89	63	91	68	99	65	93	68	97	73	95	72	93	71	98	71
9....	88	68	93	67	92	73	93	72	91	73	90	61	93	69	89	75	97	70	92	67	97	74	95	72	94	71	98	73
10....	81	69	90	70	89	68	77	63	80	68	90	65	85	70	76	64	87	71	82	68	89	75	81	68	90	71	92	71
11....	74	53	80	60	77	55	75	57	73</td																			

TABLE 3.—*Maximum and minimum temperatures for September, 1912. District No. 5—Continued.*

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.															
					Cairo.		Mascoutah.		La Salle.		Monmouth.		Mount Vernon. §§		Peoria.		Springfield.		Kishwau- kee..	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	93	74	93	73	91	75	98	71	93	75	96	78	93	75	93	73	93	74	91	67
2.....	91	68	90	75	92	74	99	70	87	70	90	71	94	71	92	71	92	73	83	71
3.....	89	70	82	65	92	75	99	71	89	68	94	67	94	77	88	68	89	70	86	63
4.....	92	75	88	65	94	75	100	70	96	69	97	76	94	69	95	71	95	70	95	66
5.....	92	73	92	66	94	76	101	68	97	73	97	67	97	70	96	70	95	71	95	70
6.....	95	70	92	66	95	76	100	67	96	69	96	67	94	69	97	67	96	71	94	66
7.....	95	69	85	69	95	76	102	68	91	69	95	66	95	69	93	69	95	72	91	62
8.....	97	68	91	69	94	74	102	66	97	67	98	67	94	69	97	69	96	69	96	62
9.....	94	73	91	64	95	74	99	67	95	69	98	68	93	68	95	71	93	71	95	65
10.....	93	69	92	63	95	73	102	65	94	68	95	65	95	67	96	68	95	68	90	65
11.....	83	67	79	67	93	72	94	67	78	59	85	63	89	66	82	61	84	62	76	64
12.....	79	58	74	47	81	62	85	53	79	53	82	51	80	54	79	50	78	57	80	51
13.....	70	56	77	52	86	60	89	48	75	55	68	54	84	53	76	53	77	55	72	56
14.....	77	63	78	60	87	70	90	65	79	64	81	54	88	55	79	63	81	63	78	59
15.....	72	63	76	60	89	70	82	67	73	62	74	64	85	64	77	66	79	69	71	62
16.....	71	59	73	56	84	68	85	62	75	56	70	58	83	63	77	61	77	63	71	53
17.....	64	52	85	60	76	65	78	63	62	56	67	49	68	64	61	53	63	59	67	55
18.....	62	48	82	59	72	58	69	53	60	51	63	46	69	56	65	47	64	50	62	48
19.....	76	45	74	47	72	51	77	43	71	52	72	45	73	46	73	47	73	46	70	47
20.....	65	52	70	48	82	57	77	53	74	54	65	54	81	49	73	56	74	55	71	51
21.....	69	50	74	47	74	59	76	56	59	52	68	51	73	59	64	52	60	53	64	50
22.....	74	47	78	43	72	54	75	53	69	49	72	43	60	51	71	50	72	53	69	45
23.....	76	47	76	42	73	54	79	44	76	48	77	46	73	45	76	45	73	50	76	41
24.....	74	49	71	45	79	55	81	45	74	50	77	46	79	42	75	53	75	50	75	45
25.....	68	45	75	38	76	55	71	56	66	43	65	44	66	51	65	43	65	47	64	44
26.....	60	34	78	36	62	50	66	38	57	36	61	32	63	41	60	35	59	39	60	33
27.....	68	40	83	34	68	46	73	36	65	39	66	37	68	39	67	39	66	42	63	39
28.....	58	45	70	37	73	49	78	39	51	42	58	46	74	41	54	44	65	47	49	39
29.....	57	40	55	39	60	50	63	48	58	37	60	34	60	45	58	38	58	44	58	32
30.....	62	33	61	34	64	48	67	35	61	35	61	34	64	39	61	32	61	39	61	35
Means.....	77.2	56.7	79.7	54.2	82.0	63.4	85.2	56.9	76.6	56.3	78.3	54.8	80.8	57.6	77.8	56.2	78.1	58.4	75.8	53.5

*, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.